

Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) EP 0 759 681 A3

(12) EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
06.05.1998 Bulletin 1998/19

(51) Int Cl.⁶: H04Q 11/00

(43) Date of publication A2:
26.02.1997 Bulletin 1997/09

(21) Application number: 96401795.8

(22) Date of filing: 16.08.1996

(84) Designated Contracting States:
DE FR GB

(30) Priority: 18.08.1995 JP 210867/95
19.03.1996 JP 63554/96

(71) Applicant: NIPPON TELEGRAPH AND
TELEPHONE CORPORATION
Shinjuku-ku, Tokyo 163-19 (JP)

(72) Inventors:
• Watanabe, Atsushi
Kanazawa-ku, Yokohama-shi,
Kanagawa-ken (JP)

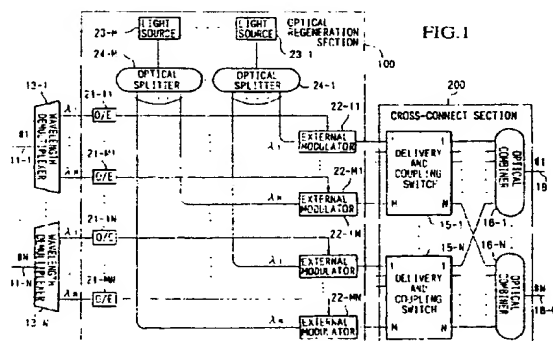
• Koga, Masafumi
Yokosuka-shi, Kanagawa-ken (JP)
• Sato, Ken-ichi
Kanazawa-ku, Yokohama-shi,
Kanagawa-ken (JP)

(74) Representative: Dubois-Chabert, Guy et al
Société de Protection des Inventions
25, rue de Ponthieu
75008 Paris (FR)

(54) Optical cross-connect system

(57) An optical cross-connect system is provided with M fixed wavelength light sources and external modulators corresponding to respective optical paths, serving as light sources for wavelength conversion devices corresponded to M x N optical paths. By means of electrical signals for the converted optical signals carried on the M x N optical paths, CW lights input to the external modulators from the respective light sources are modulated, wavelength converted and then output. Accompanying this wavelength conversion, wavelength multiplexed light sources which can select lights from a plurality of fixed wavelength light sources and output to pre-

determined output ports, are used for the light sources of the plurality of wavelength conversion devices of the cross-connect system. In this way, the light sources of a plurality of wavelength conversion sections are commonalized using a fixed wavelength light source. As a result wavelength multiplexed light sources which can respectively output lights of optional wavelengths to a plurality of output ports using a plurality of fixed wavelength light sources are realized. Moreover, by using such wavelength division multiplexed communication light sources, then a highly realizable and economical optical cross-connect system is possible.



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 96 40 1795

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	WATANABE A ET AL: "OPTICAL PATH CROSS-CONNECT NODE ARCHITECTURE OFFERING HIGH MODULARITY FOR VIRTUAL WAVELENGTH PATHS" IEICE TRANSACTIONS ON COMMUNICATIONS, vol. E78-B, no. 5, 1 May 1995, pages 686-693, XP000513468 * paragraph 3.1 - paragraph 3.2 *	1,6,12, 13	H04Q11/00
A	KOJI SASAYAMA ET AL: "DEMONSTRATION OF A PHOTONIC FREQUENCY-ROUTING-TYPE TIME-DIVISION INTERCONNECTION NETWORK-FRONTIERNET - AND PERFORMANCE ANALYSIS OF FDM OUTPUT BUFFERS" ISS'95, vol. 2, 23 April 1995, pages 452-456, XP000495699 * figure 2 *	1,6,12, 13	
A	KUO-CHUN LEE ET AL: "A WAVELENGTH-CONVERTIBLE OPTICAL NETWORK" JOURNAL OF LIGHTWAVE TECHNOLOGY, vol. 11, no. 5/06, 1 May 1993, pages 962-970, XP000396725 * figures 3,5 *	1,6,12, 13	TECHNICAL FIELDS SEARCHED (Int.Cl.6) H04Q
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 12 March 1998	Examiner Dhondt, E
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 (03.82) (Pdq/01)